Revised 04/12/02

Sensitive Plant Module
for the
Timber Harvest Review Component

California Department of Fish and Game
Northern California - North Coast Region
Interior Timberland Planning Team

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Resource Issue

Due in part to diverse climate, topography, and geology, approximately 290 sensitive[1] plants are known to occur in the interior six counties of the Northern California-North Coast Region. The majority of these taxa occur within or adjacent to forested habitats. Because of this distribution pattern, many of the sensitive plants in the Northern California-North Coast Region are potentially subject to disturbances associated with timber harvesting.

Most timber operations (i.e., timber falling, yarding, and site preparation) result in the modification of forested habitats. Timber operations may also modify adjacent or nearby non-forested habitats. This habitat modification may affect plant populations and their habitats either directly (via crushing, burying, burning, seed scarification, etc.) or indirectly (via modification of abiotic conditions such as light availability, relative humidity, and soil parameters, or via modification of biotic elements including mycorrhizal fungi, pollinators, pathogens, and competitors). These effects may be either detrimental or beneficial - the outcome depends on the ecology of the affected plants and the type, magnitude, and timing of the timber operation. Some intensive ground-disturbing operations (i.e., road and landing construction) essentially destroy plant habitats, and generally adversely affect sensitive plant populations (though roadcuts and landing edges have been observed to provide habitat for some sensitive taxa).

Because of the limited range and distribution of these plants and their important contribution to the biological diversity of California, they are considered significant public trust resources. As such, adequate stewardship by commercial timberland owners requires that the effects of timber operations upon these plants be addressed in Timber

[1] As used in this document, the term "sensitive" denotes plant taxa that are 1) currently listed pursuant to the Federal Endangered Species Act, California Endangered Species Act, or Native Plant Protection Act, or 2) meet the definition of rare or endangered provided in §15380 (b) of the Guidelines for the California Environmental Quality Act.

Harvesting Plans (THPs). THPs should include measures which will avoid or minimize impacts to the occurrences of and suitable habitat for sensitive plants.

Goal

- Ensure that sensitive plant populations and sensitive plant habitats are adequately managed and protected during timber operations through the review of THPs

Objectives

- Review THPs to determine if sensitive plant species and sensitive plant habitat potentially occurring in project areas are addressed and, if appropriate, will be protected during the proposed timber operations
  - Pose Review Team questions requesting clarification or additional information when THPs contain confusing or inadequate descriptions of sensitive plants
  - Attend Preharvest Inspections (PHIs) for selected THPs to further investigate botanical resource issues
  - Recommend measures that can be incorporated into THPs to avoid and/or minimize impacts to sensitive plants occurring or potentially occurring onsite
- Conduct active- and post-harvest monitoring to determine whether sensitive plant protection measures incorporated into the THP are implemented during timber operations
- Continue to build the Team knowledge base related to the distribution of sensitive plants, suitable habitat for these plants, the response of each plant to various management operations, and potential mitigation measures, so that the Team can better function in the role of trustee agency and expert consultant to timberland owners and registered professional foresters (RPFs).

Strategic Plan

When a THP is received, Interior Timberland Planning Team (Team) staff use databases and geographic information systems (ENQUERY, NDDB, California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California, etc.) to determine if any sensitive plants are currently known to occur in the general vicinity of the THP. Team staff also review the habitat, soil types, and ecological information provided in the THP. From these reviews a list of potential rare plants occurring in the THP area is developed. The THP is then reviewed to determine whether these and/or other sensitive plants are addressed. Depending on the information in the THP and the nature of the plants potentially at risk, Team staff will 1) end the review of plant issues, 2) pose First Review questions requesting clarification or additional information, or 3) request to attend the PHI.

If the plants in question are not addressed in the THP, the Team will generally ask a First Review question inquiring about the inadequacy and will consider attending the PHI for the THP. If the plants in question are addressed, the Team will evaluate the impact analysis included in the THP, as well as any measures designed to avoid or

lessen potential impacts to those plants. The evaluation is based on the nexus between what is known about the ecology of the plants in question and the specific timber operations proposed in areas of potentially suitable habitat. If the impact analysis and/or proposed protection measures are potentially inadequate or are otherwise confusing, the Team may also pose First Review questions or request to attend the PHI. Pending the RPF response to First Review questions and/or conditions observed during the PHI, the Team may submit specific recommendations to California Department of Forestry and Fire Protection which are designed to avoid or minimize project impacts to sensitive plants or their habitat. These recommendations may often include a request that a botanical survey be conducted to determine whether the plants in question are present within areas of proposed operations.

Current staffing does not permit the thorough review of all THPs. During First Review, THPs are prioritized for further review of sensitive plant issues based primarily on the resources at risk (the particular sensitive plants potentially occurring in the project area, the specific timber operations proposed, etc.). THPs submitted by timberland owners without Team-accepted programmatic plant conservation strategies should receive higher priority for intensive review because no protection measures will be included in the THP by prior agreement. THPs that do not include specific protection measures for sensitive plants, or require plant surveys should also receive higher priority for intensive review. By working closely with the RPFs who prepared these THPs, the Team can establish relationships that will likely result in better built-in protection for sensitive plants in future THPs.

RPFs should be encouraged to consult with the Team during THP preparation regarding sensitive plant occurrences, impact assessment, and protection. These early consultations will make the RPF aware of Team concerns early in the THP preparation process and can thus help streamline the review of the THP when it is eventually submitted.

In order to help Team staff make the most informed recommendations possible, the Team sensitive plant management database should be continually updated and upgraded.

Monitoring

Monitoring is an important component of THP review. Monitoring by the Team will include active- and post-harvest inspections, and might include both implementation monitoring and effectiveness monitoring. Implementation monitoring in the field is critical, as it will determine whether the recommendations specified in a THP are actually implemented during timber operations. Effectiveness monitoring is likewise important to determine the efficacy of the recommendations which were incorporated in the THP.

Team staffing is not currently adequate to permit active- or post-harvest inspections on each THP. When prioritizing THPs for monitoring, they should be evaluated by the

specific botanical resources at risk, the particular mitigation measures incorporated into the THP, and the location of the THP (THPs in Trinity and Siskiyou counties should receive greater priority, due to the requirements of the Headwaters North Coast Enforcement budget change proposal).

Adaptive Management

Adaptive management is important to the long-term effectiveness of plant protection during timber operations. In general, little is known about the responses of most sensitive plants to specific timber operations (very little experimental work has been conducted and anecdotal evidence is generally limited). It may be determined via monitoring that the recommendations included in THPs for many plants may result in insufficient protection or in more protection than is necessary. Effectiveness monitoring results should be evaluated and, if necessary, used as the basis for developing improved mitigation measures for protecting particular plants or habitats. These results should also be communicated to RPFs in order to keep them aware of current information about the response of plants to specific operations.

Measures of Success

Success will be measured by the extent to which the following are met:

- THPs provide adequate discussion and protection of sensitive plants and botanical resources when submitted
- "Preconsultations" with Team regarding sensitive plants in THPs increase
- Team recommendations for botanical resources are accepted by CDF and the RPF and incorporated into THPs
- Implementation monitoring is conducted on least 25% of THPs in Trinity and Siskiyou counties and 10% of THPs in Lassen, Modoc, Shasta, and Tehama counties
- Effectiveness monitoring is conducted